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## GENERAL STUDIES (TEST CODE : 1248)

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|---|---|---|---|
| Name of Candidate | Anil Basak | | |
| Medium Eng./Hindi | English | Registration Number | 28487 |
| Center | | Date | 11/09/19 |

### INDEX TABLE

| Q. No. | Maximum Marks | Marks Obtained |
|---|---|---|
| 1 | 10 | |
| 2 | 10 | |
| 3 | 10 | |
| 4 | 10 | |
| 5 | 10 | |
| 6 | 10 | |
| 7 | 10 | |
| 8 | 10 | |
| 9 | 10 | |
| 10 | 10 | |
| 11 | 15 | |
| 12 | 15 | |
| 13 | 15 | |
| 14 | 15 | |
| 15 | 15 | |
| 16 | 15 | |
| 17 | 15 | |
| 18 | 15 | |
| 19 | 15 | |
| 20 | 15 | |

**Total Marks Obtained:**

**Remarks:**

### INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न है अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य है।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम मे लिए गएं उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar Delhi- 110009

# EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. Explain the significance of Credit Rating Agencies (CRAs) in India and highlight the issues in their working. (150 words) 10

भारत में क्रेडिट रेटिंग एजेंसियों (CRAs) का महत्व स्पष्ट कीजिए और इनकी कार्यप्रणाली से संबद्ध मुद्दों को रेखांकित कीजिए।

Credit Rating Agencies (CRAs) provide ~~standa~~ ratings on company's profits, performance, debt profile, future prospects. They give these ratings based on standards prescribed by SEBI.

Significance

(1) More informed investor - better choice to invest in which company for optimal returns.

(2) Decreased NPA - as bank will give credit based on debt sustainability rating.

(3) Self Polishing effect - will force companies to improve their financial situation.

(4) Prevent systemic failures like seen in IL&FS crisis.



the Best

Don't write anything in this margin (इस भाग में कुछ ना लिखें)

**Issues.**

- Shell Companies – not able to identify
- Issuer pay Model – led to Interest Conflict of Interest.
- Rating Shopping – invite company which give best rating.
- Lack of data provided by companies for assessment.
- Lack of Competition – Only <10 CRAs in Indian Market.
- Long term friendships with Companies.

**Way Forward.**

- Use of MCA-21 data.
- Proactive disclosure of liquidity Mismatch situation
- More competition – allowing more entrants.
- Display of rating by all CRA mandatory.

With suitable reforms, it will lead to penetration of Corporate Market which will lead to better transmission of Monetary policy by RBI.

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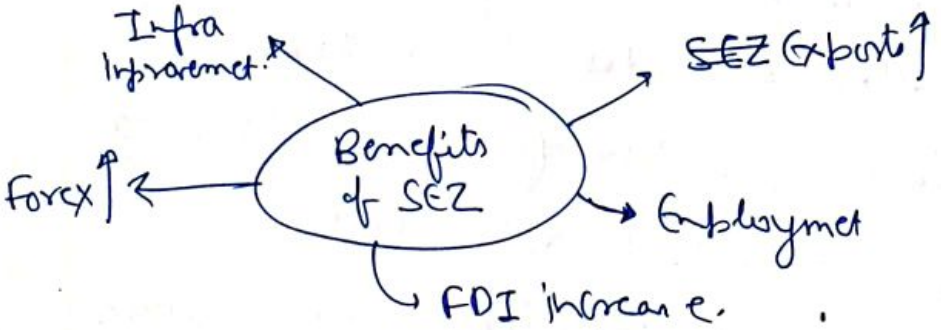
2. What are the issues that have limited the success of Special Economic Zones (SEZs) in India? Mention some steps that can be taken to address them. **(150 words) 10**

भारत में विशेष आर्थिक क्षेत्र (SEZs) की सफलता को सीमित करने वाले मुद्दें क्या हैं? इन्हें दूर करने के लिए उठाए जा सकने वाले कुछ कदमों का उल्लेख कीजिए।

SEZs are deemed foreign area in Indian territory for custom purposes. They are regions with state of the art infra to boost export competitiveness & increase foreign exchange reserves.




Issues in SEZ

- Poor connectivity – located far away from ports & coasts.
- Restriction on access to domestic Market.
- Small size ⇒ No economies of scale.
- Less govt. support ⇒ Led by private sector for infra development.

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Steps To be Taken

- Baba Kalyani Committee on SEZ suggest cross cutting reforms.

a) Convert SEZ to EEZ (Economic & Employmet Zones)

b) Do away Domestic Market access restriction. Eg - Chinese Model ⇒ More profitability

c) Connectivity to ports by Dedicated Freight Corridor & Industrial Corridor.

d) Cluster formation of smaller SEZ to bigger size as seen in China.

e) Incentives by govt. like Sunset Clause to be Continued.

f) Access to Credit.

Export Led growth Model as envisaged in SEZ model will help in putting India at the forefront of 4th Industrial Revolution by Catering to global demand.

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3. The opportunities for start-ups in India are immense, but so are the challenges. Discuss. (150 words) 10

भारत में स्टार्ट-अप्स के लिए असीमित अवसर हैं, लेकिन चुनौतियां भी उतनी ही हैं। चर्चा कीजिए।

Start-ups are the Company in Infant Stage with <10 years of establishment. They are engines of innovation & employment as encouraged by ES 2018-19

Opportunities.

- Young population with innovative minds.
- Large Market for demand.
- Govt. initiatives like Mudra Yojana, Startup India, Stand Up India, Atal Innovation Mission.
- Research facilities in IIT's, IISc.
- ICT infra, MOOC courses & Startup Guidance Programme.

→ Presently India is 3rd largest ICT startup hub & have ~~2nd~~ highest fintech adoption rate.

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Challenges.

① Access to Credit - in face of large NPA's.
② Incubators & Guidance programme to become Unicorns.
③ EODB ranking is low compared to USA & China.
④ Taxation like Angel Tax issues
⑤ Brain Drain to other countries
⑥ Data Localization norms.
⑦ Thwarted govt. initiatives for MSME ⇒ less incentive to grow big highlighted by ES 2018-19.
⑧ Digital infra in remote areas which have immense potential.

Startups & innovative minds need to be promoted to convert India into a innovation driven economy. 24X7 Startup guidance channel on doordarshan & incubators is a step in right direction

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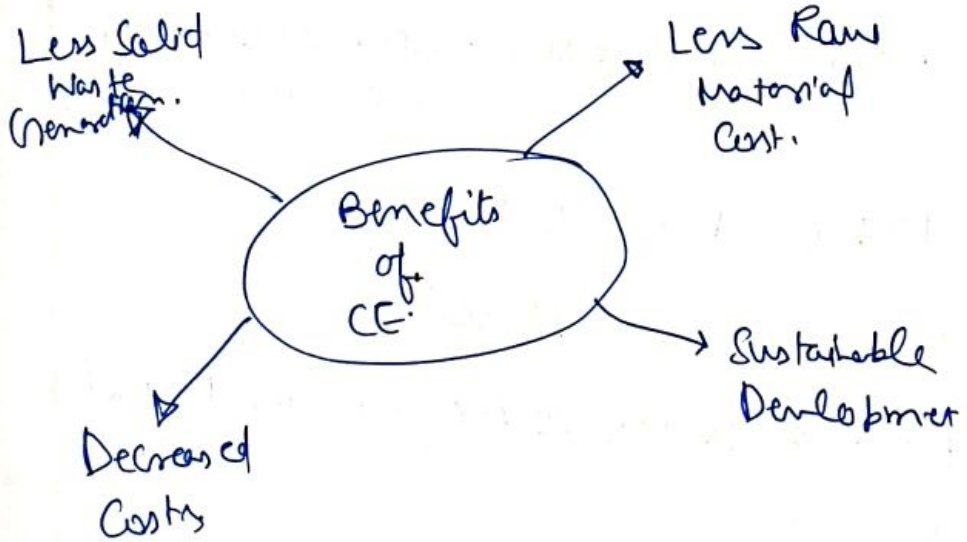
4. The term 'Circular Economy' is often seen in news. What are the principles that it is based on? Bring out its relevance for India. **(150 words) 10**

'चक्रीय अर्थव्यवस्था' (सर्कुलर इकॉनमी) पद प्राय: सुर्खियों में रहता है। वे कौन-से सिद्धांत हैं जिन पर यह आधारित है? भारत के लिए इसकी प्रासंगिकता स्पष्ट कीजिए।

Circular economy is based on the principle of maximum value realization from a raw material

Tools of CE. { Recycle, Reuse, Reduce, Repair, Refurbish,




Relevance in India

(1) Large population has put immense pressure on resources

Don't write anything this margin (इस भाग में कुछ ना लिखें)

→ Circular economy will reduce this pressure.

(2) Clean India - by decreasing Waste.

(3) Export Hub - by increasing cost competitiveness

⇒ ₹-$ volatility ↓ & Current Account deficit ↓

(4) New employmet - in height of increased unemployment

- low skill sectors - like repair.
- high skill sectors - new technology for reuse & recycle

(5) Achieving SDG. by 2030

(6) Reaping economies of scale.

(7) Promoting MSME sector by raw Material availability.

India should pioneer in Circular economy in face of 4th Industrial Revolution. by investing in new technologies.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

5. Assess the performance of Pradhan Mantri Jan-Dhan Yojana in achieving its stated objective of financial inclusion. (150 words) 10

वित्तीय समावेशन के अपने निर्धारित उद्देश्य को प्राप्त करने में प्रधानमंत्री जन-धन योजना के प्रदर्शन का आकलन कीजिए।

PMJDY is a financial inclusion scheme which aims to increase penetration of saving accounts, insurance, pension, credit availability to all citizens.

Target - 80 Crore new bank accounts by 2020.

Peformance - 32 Crore bank accounts opened of which
→ 53% are women account holders.
→ 59% are from rural sector.

- It increased digital payments by providing Rupay Card.
- Increased insurance cover by providing Accidental insurance of 1 Lakh per family.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- Increased business expansion by access to formal credit (further only 10% credit goes to rural sector).
- Overdraft facility helps people to start new business.
- Increased credit amount with bank.

**Issues:**

→ Many zero balance accounts.

→ People still fear of bank failure & keep money in home.

→ Unaccounted money in PMJDY accounts during demonetization.

**Way Forward**

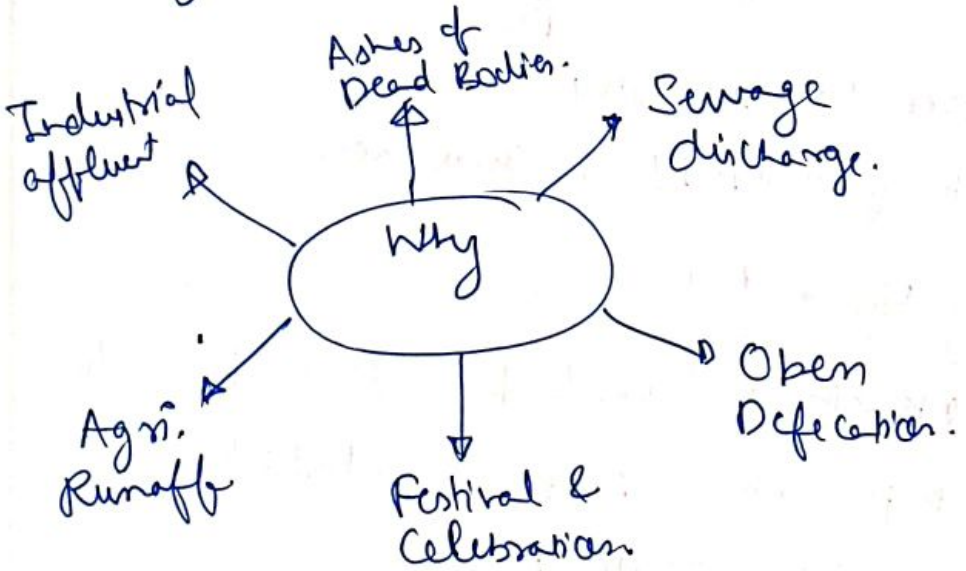
Clubbing of PMJDY, Mudra Scheme & IPPB (India Post Payment Bank) for better synergy.

Domestic savings are biggest source of investment in India. Govt. should work on the principle of 'No customer too small & No deposit too little'.

6. How does pollution in rivers impact the surrounding ecosystem? Explain why such pollution has not shown signs of improvement, despite various government initiatives. **(150 words) 10**

नदियों के प्रदूषण से आसपास का पारिस्थितिकी तंत्र कैसे प्रभावित होता है? समझाइए कि विभिन्न सरकारी पहलों के बावजूद इस प्रकार के प्रदूषण में सुधार के संकेत क्यों नहीं हैं।

Recent data from Jal Mantralaya & CPCB shows that number of polluted river stretches increased to >350 in number with >50 stretches are extremely polluted.




**Impact on Surroundings**

- Foul Smell. ⇒ Inhabitable env.
- Birds & animals which drink water get diseases & die.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- Loss of biodiversity in rivers Eg- Ganges Dolphin at Risk
- Ground Water Contamination in nearby areas.

**Why Not Improved**

- Industry-Politicians Nexus.
- Irrational use of Fertilizers.
- Poor Oversight, CPCB lack manpower & SPCB.
- River Conflict btw States
- Lack of individual awareness.

**Way Forward**

- → Basin & Landscape level approach.
- → Promoting STP & industrial water waste treatment.
- → Promoting self cleansing capacity, by ecology level of flow.

Govt. need to raise awareness for 'Nirmal & Aviral' Rivers to achieve SDG6.

7. What is project MANAV launched by the Department of Biotechnology? Highlight the significance of this project. (150 words) 10

जैव प्रौद्योगिकी विभाग द्वारा आरंभ की गई मानव (MANAV) परियोजना क्या है? इस परियोजना के महत्व पर प्रकाश डालिए।

Project MANAV is first ever project to map human body at cellular, molecular, tissue & organ levels. It is launched by Do Biotechnology in MoS&T.

Significance

- Better information about functioning of human body.
- It is implemented at two stage
  - → (1) At normal body
  - → (2) At stage of disease attack.

⇒ Will help to learn about disease propensity & spread mechanism.

→ Given India faced 20% of global disease burden it will lead to better healthcare intervention.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- Inventing new drugs & vaccines
- Learning about Mutations & drug resistance
- Will differentiate different cells responsible for different functions ⇒ Development of specialized cell possible in future.
- Will give valuable inputs for Stem Cell & Cloning research.
- Help in find out indigenous people traits

India should Collaborate with global efforts like HUMAN-Read & Write programmes to further enrich data.

It also do need to ensure cybersecurity of data collected & ensure no privacy breach.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

8. Highlighting the properties and applications of superconductors, discuss the constraints related to their practical use. (150 words) 10

अतिचालकों के गुणों और अनुप्रयोगों पर प्रकाश डालते हुए, इनके व्यावहारिक उपयोग से संबंधित बाधाओं की विवेचना कीजिए।

Superconductors are material with high electrical conductivity & offer very less resistance to flow of current through it. Eg - Carbon nanotubes.

Applications

① In electronic industry.
→ for faster charging of Mobiles phones & laptops.

② In space.

③ In Renewable energy
→ battery storage & PV cell to effectively harness solar energy

④ Harnessing energy from thunderbolt
- Research in USA.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(4) In safety equipments - in homes allowing large current to pass through them in case of failure.

Constraints

(1) Lack of R&D

(2) Properties at nano scale to be manipulated.

(3) Efficiency is improved

(4) Can cause electric shocks without safety equipment.

There is need to further R&D to refine properties for practical use.

9. Discuss the reasons behind India becoming a major destination as well as a transit hub for drug trafficking in South Asia. How does this effect India's internal security? (150 words) 10

दक्षिण एशिया में भारत के मादक पदार्थों की तस्करी के प्रमुख गंतव्य स्थल के साथ-साथ पारगमन केंद्र बनने के कारणों पर चर्चा कीजिए। यह भारत की आंतरिक सुरक्षा को कैसे प्रभावित करता है?

India have an unfortunate geographical location of being at crossroad of golden crescent (Pak, Iran, Afghanistan) in North & Golden triangle (Thailand, Myanmar, Cambodia) in east.

Major Transit Hub

→ Porous boundaries. by rivers & high Mountains remain unguarded.

→ Friendship accords with ~~to~~ neighbour countries which have traffickers due to lack of oversight.

→ Support for domestic elements. to get illegal large money.

Don't write anything in margin (इस भाग में कुछ ना लिखें)

**Major destination**

→ Increased drug intake due to stress, depression, easy availability.

→ **Threat to Internal Security**

→ Fuel other crimes by providing money for ~~the~~ arms trade & human trafficking.

→ Fuel terrorism by supplying arms.

→ Radicalize Youth & decreased productivity

**Way Forward**

- → Better guarding of boundaries. – ICT Use
- → Rehabilitations of addicts. (In Punjab & Manipur) by deadiction Plan.
- → Curbing Drug & Narcotics Act loopholes which divert drug from medicinal purpose
- → Coordinate with neighbour.

To reap the demographic dividend & securing social fabric we need to curb menace of drugs

Don't write anything this margin (इस भाग में कुछ ना लिखें)

10. The development of border areas is an important element in border management. In this context, discuss how the Border Area Development Programme (BADP) seeks to ameliorate the problems faced in border areas. **(150 words) 10**

सीमावर्ती क्षेत्रों का विकास वस्तुतः सीमा प्रबंधन का एक महत्वपूर्ण घटक है। इस संदर्भ में, चर्चा कीजिए कि सीमा क्षेत्र विकास कार्यक्रम (BADP), सीमावर्ती क्षेत्रों की समस्याओं में कैसे सुधार लाना चाहता है।

Border Area Development Programmes is implemented by Ministry of Home Affairs to improve Connectivity & Infra in villages near the border.

Aim → Road Connectivity wherever possible.
→ Basic Infra of schools, hospital, water & sanitation.
→ Digital Connectivity.

How helpful in Border Mgt.

→ Deradicalize Youth by development opportunities & thus using local population as eyes & ~~ye~~ ear of army.

Don't write anything in margin (इस भाग में कुछ ना लिखें)

→ Easy transportation of defence equipments to army bases.

→ Army can use hospitals in case of war.

→ ICT infra of army will be used efficiently with digital infra

Issues

→ Difficult terrain

→ Slow Speed of Execution

→ Hostile indigenous people in hills – Arunachal Pradesh.

→ Layered approach of boundary first increase cost as path to boundary area is still not constructed.

Govt. should provide basic amenities in boundary areas & increase use of ICT to further improve cross border security

11. Examine whether Fixed Term Employment will be able to achieve the objectives of ease of doing business, achieving labour welfare and job creation. **(250 words) 15**

परीक्षण कीजिए कि क्या नियत अवधि का रोजगार, ईज ऑफ़ डूइंग बिज़नेस, श्रम कल्याण और रोजगार सृजन के उद्देश्यों को प्राप्त करने में सक्षम होगा।

Fixed term employment refers to the process of hiring labour for a given time period. ~~Or~~ In this time period the workers will be available to all statutory benefits available to permanet workers.

**Need of Fixed Term Employment**

- Gig Economy on rise as 53% of new job created are by contract labour sector.
- Increase in freelancer contractors.
- Seasonality of workload in a industry.
- Unemployment rate - 6.1% highest ever.

margin छोड़ना है कुछ नहीं लिखे

## Benefits of FTE

① Cost of industry in hiring labour will decrease.

② Inflation decrease due to more competitive prices.

③ Skilling of workers in varied sectors will be seen.

④ Disguised unemplymet will decrease.

⑤ EODB for Company with easy compliance with labour laws.

⑥ FDI will increase.

Economic Survey 2018-19 supports FTE for EODB and Union govt. recently allowed FTE in all sectors & requested state govt. to do same.

→ Maharashtra already implemeted FTE & has seen +ve results.

## Issues with FTE

Don't write anything this margin (इस भाग में कुछ ना लिखें)

① Social security will decrease for workers.
→ Working Unions already protested for this.
② Suspicion of Crony Capitalism.
③ Might increase Child labour as workers are not on payroll.
④ More Informalization of economy.

Govt. needs to balance the issues & address workers demand.
→ Code on Social Security should be implemented fastly with consensus of industrialist & workers. Prior Notice on Labour removal, Written Contract letters should be ensured.

In face of Gig economy & rising competitiveness & 4th Industrial revolution, FTE with safeguards will be great step.

Don't write anything in margin (इस भाग में कुछ ना लिखें)

12. A growing livestock sector augurs well for the low income households to augment their income and escape poverty. Discuss. Further, suggest some strategies for ensuring sustainable livestock sector growth in India. (250 words) 15

एक वृद्धिशील पशुधन क्षेत्रक निम्न आय वाले परिवारों के लिए अपनी आय में वृद्धि करने और गरीबी से बाहर निकलने हेतु शुभ संकेत है। चर्चा कीजिए। इसके अतिरिक्त, भारत में पशुधन क्षेत्रक का संधारणीय विकास सुनिश्चित करने हेतु कुछ रणनीतियों का सुझाव दीजिए।

India has the world's largest livestock population and world's leading producer in milk and other bovine products.

→ Livestock + Agriculture + Bee keeping + Fishery = Mixed Farming

⇒ Increased avenues of income.

**Benefits of Livestock Sector**

① Decrease pressure on land as decreasing need of fertilizer & water intensive crops for higher income.

② Most beneficial for rainfed areas Eg - Rajasthan where one's can't

Don't write anything this margin (इस भाग में कुछ ना लिखें)

grow high price crops. like sugarcane & rice.

(3) More income ⇒ Education & better health led to human development & decrease poverty.

(4) Milk considered as wholesome diet ⇒ Decreased Malnutrition

→ India witnessed the **White Revolution** with Operation flood under Cooperative Movement in Milk production sector. This led to millions of rural people to come out of poverty.

**Stagnation in Milch Sector**

- → Less R&D
- → Disease in cattle
- → Less processing & higher value products.
- → Less exports.

Measure ~~take~~ be Taken

① Indigenous breed to be promoted under Gokul Mission - WHO study highligh outstanding characteristics of Indian Cow.

② Focus on value added products like Cheese, Probiotic Curd, processed Meat (Pink Revolution) for better income

③ Cluster based approach for FPO's & Cooperative to reap economies of scale.

④ Testing facility for Sanitary & Phyto Sanitary measures to get access for export markets.

⑤ R&D in new specialized breed eg- Murrah for better productivity.

Livestock stock will play crucial role in doubling farmer income by 2022 as suggested by Ashok Dalwai Committee.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

13. Examine whether the time has come for India to usher in full liberalisation of the Capital Account. (250 words) 15

परीक्षण कीजिए कि क्या भारत के लिए पूंजी खाते के पूर्ण उदारीकरण की शुरुआत करने का समय आ गया है।

Current. ~~Capital~~ account of a country consists of export & import spending, ~~Remittances~~, FDI's, FPI, External Commercial Borrowings, ~~etc~~. Remittances etc.

Current Account

- Revenue (Fully Convertible in India)
- Capital. (Non fully Convertible)

• Presently Capital Account is fully convertible for inflow of capital but not for outflow.

Benefits of Full Liberalization.

① Internationalization of Rupee - global acceptability.

Don't write anything in this margin (इस भाग में कुछ ना लिखें)

(2) Ease of investment for foreign investors – FDI & FPI will increase.

(3) More source of capital availability for domestic industrialists – by Masala Bonds & External Commercial Borrowing (ECB)

(4) More exports & imports growth.

**Cons of Full Liberalization**

a) ₹-$ Valtility – will increase with less control of RBI which have limited intervention.

⇒ when ₹ strengthen exports will take hit & CAD increase to unmaingable levels.

b) Failure risk of Markets due to panic created by short term FPI withdrawal

c) RBI power for investor safeguard will decrease

Don't write anything this margin (इस भाग में कुछ ना लिखें)

d) Industrialists ECB from foreign market will substaily have -ve effect when ₹ weakens ⇒ Debt trap & foreign control over indian industries.

**Way Forward**

→ Tarapore Committee laid down parameters for gradual liberalization.

- Stable Fiscal Deficit
- Manageable CAD.
- Low govt. debt (preferably < 60% of GDP).

→ Promote FDI over FPI.

→ Long term Contract & borrowings with Capital markets to be preferred.

→ County & Currency wise liberization for eg- Japanese Yen with which India have Forex Swap agement or USA with large Indian diasporas

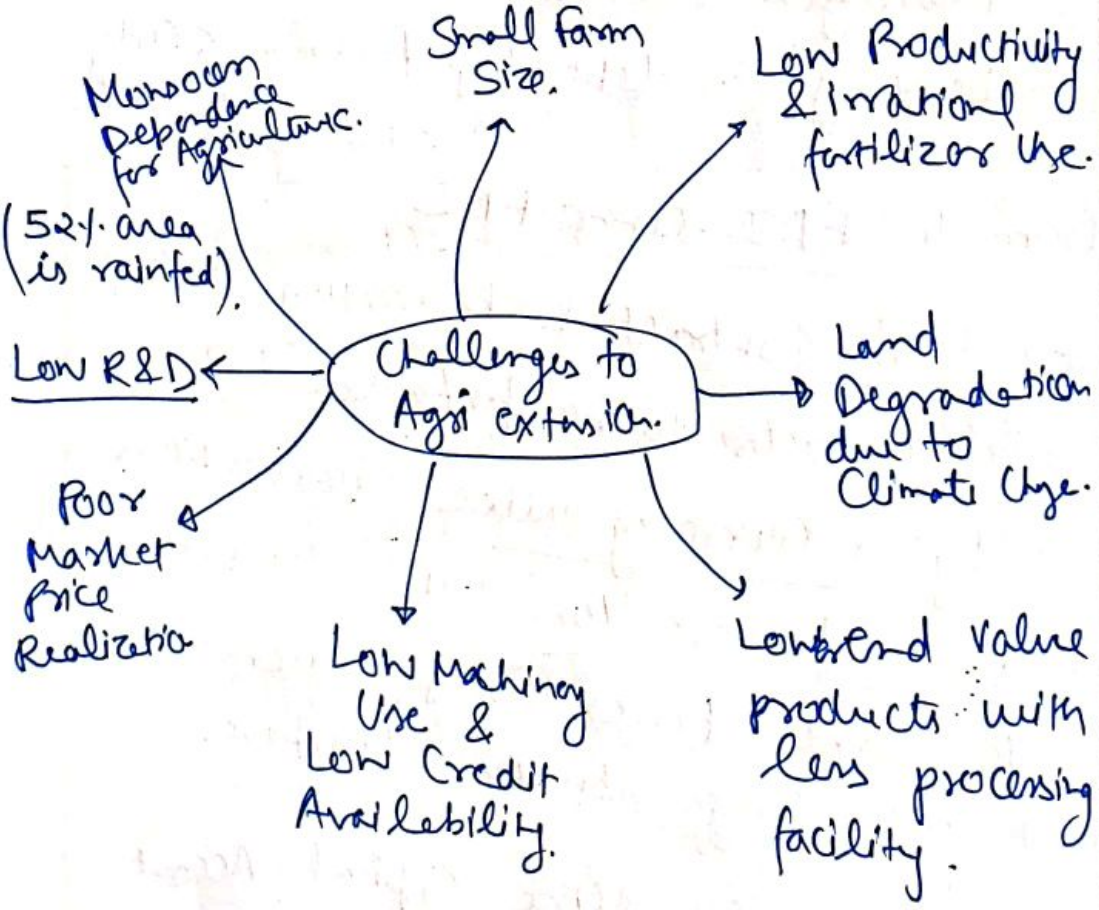
Govt. should liberalize Capital Account Cautiously & gradually to improve its ranking further in EODB index by WB.

Don't write anything in margin (इस भाग में कुछ ना लिखें)

14. Highlighting the challenges to agriculture extension in India, discuss how ICT can help in addressing them. (250 words) 15

भारत में कृषि विस्तार के समक्ष चुनौतियों पर प्रकाश डालते हुए, चर्चा कीजिए कि इन्हें दूर करने में ICT से कैसे सहायता मिल सकती है।

Agriculture sector employs 44.1% of Indian workforce & contribute around 17% of GDP as per data by GoI. Thus, it remained crucial sector for India's growth rate.



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ICT and new technologies like AI, Big Data, Cyber physical systems, internet revolution has transformed agriculture in many countries. ICT is backbone of all these technologies.

## ICT Use in Agri

- Smart Irrigation. – by using sensors for precision agri. systems ⇒ increased Water Use efficiency ⇒ Decreased salinity. & Desert bloom.
- Market price & MSP Price information (NITI Aayog stats that 60% farmers get to know MSP after sowing). Through dedicated apps & USID features farmers can get information for Market price.
- Supply Chain – coordinating supply chain from start to end with

better communication about demand, supply & perishability & processing.

- FPO creation by augmenting communication in a group of large farmers.
- Land productivity by community information to farmers about fertilizer amount by land scanning through satellites & drones → To be used in Soil Health Card Scheme
- Connecting scientists to Farmers by Mera Gaon Mera Gaurav app.
- Use of big data to assess productivity trends & suggesting suitable crops will further enhance Agro-climatic regions.

Thus, ICT along with traditional knowledge will help in transforming agriculture ensuring food security and better farmers income.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

15. Now that it has been two years since introduction of GST in India, do you think the system is on the path to achieve its intended objectives? Support your answer with relevant facts. (250 words) 15

अब जबकि भारत में GST को लागू हुए दो वर्ष हो गए हैं, क्या आप मानते हैं कि यह प्रणाली अपने अपेक्षित उद्देश्यों को प्राप्त करने के पथ पर अग्रसर है? प्रासंगिक तथ्यों से अपने उत्तर की पुष्टि कीजिए।

GST is a destination based indirect tax levied on both goods & services. In its 2 years it has may feathers in its cap & as well as issues in performance.

**Benefits provided by GST**

① Decreased Cascading effect ⇒ Lowers prices of products for common citizen

② Single Market Creation ⇒ Increased avenues of demand for producers.

③ Ease of filing taxes by Composition Schemes.

④ Decreased Logistics Cost by incorporating e-Way Bill.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

(5) Increased tax base & no. of taxpayers. For eg - In may month collection rose above ₹ 1 Lakh crore and also Direct tax payers increased by 65% in last 4 years.

(6) Self Policing effect ~~for~~ by Invoices & Input Tax credits ⇒ More registration & formalization of small producers.

(7) Cooperative Federalism - GST Council incorporates states in decision making.

(8) 0% tax on essential items ⇒ Ease of Livelihood.

(9) Equal growth in NE states

(10) EODB↑ & FDI↑

**Issues in GST**

a) Technical glitches in GSTN ⇒ creating panic among taxpayers

b) Delay in Input tax credits ⇒ Less credit with producers for business expansion.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

c) Multiple Tax slabs – 0%, 5%, 12%, 18%.
⇒ WB said that GST is most complex system.

d) Fluctation in monthly collection ⇒ Govt borrowing ↑ & Crowding out of private players.

e) States unhappy due to lost revenue in two period.

f) Some products left out – Petrol, Electricity, Aviation Fuel.

**Way Forward**

- Cybersecure GSTN.
- Rationalization of slabs with as minimum as possible.
- Stability
- Ease of filing.
- Statutory status to Anti-Profiteering Agency.

Above reforms will ensure "One Nation – One Market – One Tax" notion & improve.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

16. Write a brief note on Carbon Capture and Storage. Mention its potential benefits and discuss the challenges that need to be addressed for its wide-scale deployment in India. (250 words) 15

कार्बन अभिग्रहण और भण्डारण पर संक्षिप्त टिप्पणी लिखिए। इसके संभावित लाभों का उल्लेख कीजिए तथा भारत में इसके व्यापक पैमाने पर परिनियोजन में आने वाली उन चुनौतियों की विवेचना कीजिए जिन्हें दूर किए जाने की आवश्यकता है।

Carbon Capture is technique of forcefully pulling out Carbon content from atmosphere & then forcing it to other locations.

Carbon Storage can be as simple as storing carbon in biomass, agri crops, forest cover & fossil fuels.

→ Carbon Capture will require Carbon storage after capturing. Carbon Capture require advance technology & new chemicals to absorb $CO_2$ from Air.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

Benefits

(1) Decreased Warming - ~~also~~ & Counter holocaust of 2°C temp rise as highlight by IPCC Report.

(2) Prevent sea level rise.

(3) Prevent Melting of glaciers

(4) Using stored carbon for energy production ⇒ Energy security.

(5) Increased forest cover ⇒ Fresh Air.

(6) health benefits by preventing Air pollution.

Challenges in India

(1) High technology Cost.

(2) Underdeveloped Technology of Capturing.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

③ Can't be converted to Mass movement as local citizen can't invest in it.

Way Forward.

- With increased R&D in Capture & Storage.

In meantime India should focus on natural carbon capture by increasing tree cover to 33% & moving to use of renewable energy for less production of $CO_2$ in atmosphere.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

17. Highlight the gender specific challenges faced during disaster management. In this regard, discuss how the disaster management cycle can be made more gender sensitive. (250 words) 15

आपदा प्रबंधन के दौरान सामने आने वाली लैंगिक विशिष्ट चुनौतियों पर प्रकाश डालिए। इस संबंध में, चर्चा कीजिए कि किस प्रकार आपदा प्रबंधन चक्र को लैंगिक रूप से और अधिक संवेदनशील बनाया जा सकता है।

Disaster Mgt. is complex task of capacity building, immediate action in event of occurance & then mitigating the ill effects & rebuilding the structure.

Gender specific Challenges

- Women more vulnerable.
  - → due to low physical strength.
  - → pregnancy cases.
  - → Child Care along with herself.
  - → Slow movement.
- Widows rehabilations

margin (इस भाग में कुछ ना लिखें)

- Livelihood in aftermath of family loss due to low skills.

**How to make more gender sensitive**

- First preference to women & Children rescue.
- Rehabilitation & skilling after disasters.
- Capacity building with women specific SOP by Community training programmes.
- Use of ANM & ASHA for early identification of pregnancy cases.

Thus, a resilient women will help in effectively combating ills of Disasters.

Don't write anything this margin
(इस भाग में कुछ ना लिखें)

Don't write anything this margin (इस भाग में कुछ ना लिखें)

18. Though there are some notable individual achievements, the overall participation of women in scientific research has been abysmally low. Examine. What steps have been taken by the government in this regard? (250 words) 15

भले ही, कुछ उल्लेखनीय व्यक्तिगत उपलब्धियाँ हों, लेकिन वैज्ञानिक अनुसंधान में महिलाओं की समग्र भागीदारी अत्यंत निम्नस्तरीय रही है। परीक्षण कीजिए। इस संबंध में सरकार द्वारा क्या कदम उठाए गए हैं?

Women Constitute <20% of scientific research & study workforce as per recent data by GoI. This highlight unsued potential of women agency.

Notable Individual Achivemets

→ Head of Chandrayaan 2 - Ritu Karidhal.

→ Head of proposed Gaganyaan Mission

→ ~~Increased~~ In the past ; Kalpana Chawla & Sunita Williams but their mark in space.

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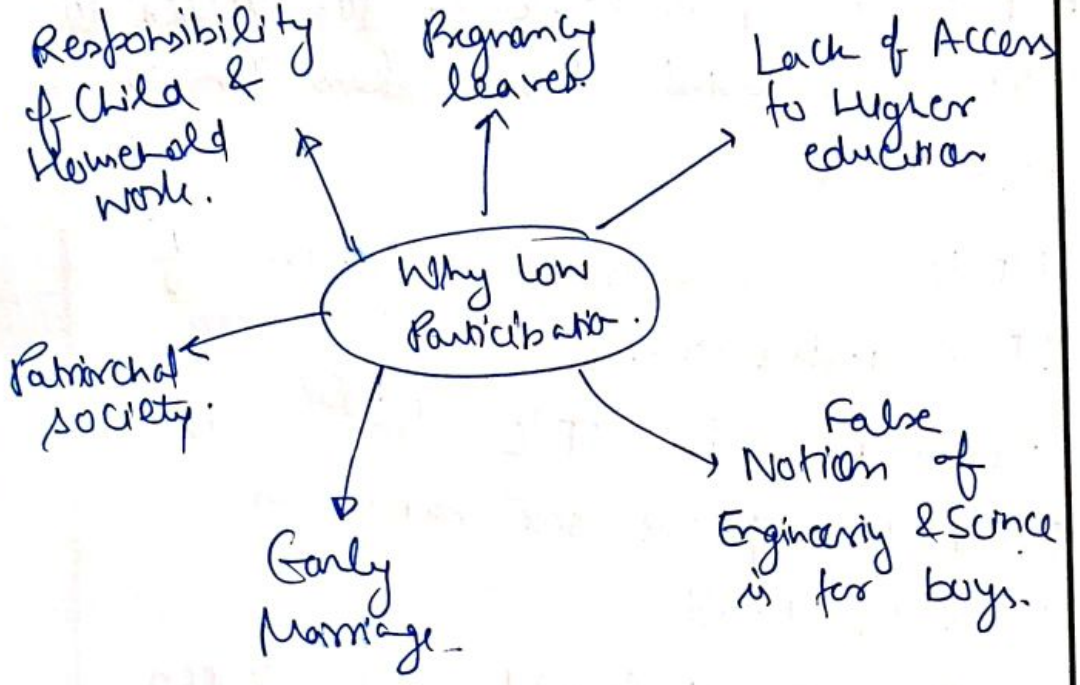


## Govt. efforts.

→ KIRAN Scheme for Women in science

→ CURIE scheme for Scientific promotion.

- Will give scholarships for Women who have left the field due to household reasons.

→ Nai Udaan for scholarships for Coaching & online Course for preparation of JEE, NEET & Other exams at Class XII level.

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→ MOOCs open courses for access to scientific material from class 9th to PhD level.

→ NPTEL courses from professors of IIT available online.

→ Reservation in IIT's for eg IIT Delhi to improve sex ratio in research field.

→ PM Research Fellowships after B.Tech to promote research culture.

At Society Level

→ Sukanya Samridhi Yojna, Beti Bachao Beti Padhao & BADLAV to change patriarchal mindsets.

Realizing women agency can convert India into a research hub and increase in intellectual property rights & innovation driven economy.

Don't write anything this margin (इस भाग में कुछ ना लिखें)

19. Discuss the significance of the recent amendments made in the NIA act and the UAPA Act for countering terrorism. (250 words) 15

आतंकवाद का मुकाबला करने हेतु NIA अधिनियम और UAPA अधिनियम में हाल ही में किए गए संशोधनों के महत्व की विवेचना कीजिए।

- NIA was created in aftermath of Taj Hotel attacks in 2008 to improve Counter-terrorism measures.
- UAPA Act aims to curb violent activities & exciting revolution against govt. machinery & disturbing social fabric.

Amendments in UAPA Act & NIA

→ Power to designate individual terrorists rather than earlier norm of just tagging organisations.

→ More power to NIA for investigation

→ Allowing inspector levels to conduct investigation to relating to terror crimes.

anything this margin (इस भाग में कुछ ना लिखें)

→ Removal of need of Prior sanction for State Police IGs for conducting investigation by NIA.

**Benefits**

- Terrorists like Hafiz Saeed, Dawood Abrahim which continue to spread terror by changing names of org. will come under Radar
- Will fortify India's demand to designate Hafeez Saeed terror by FATF & UNSC
- In line with other countries international practise like US & China.
- Will lead to faster investigation & speedy justice
- Strong detterant for future crimes.
- Will counter increasing Lone Wolf Attacks Eg- Pulwama Attack

Don't write anything this margin (इस भाग में कुछ ना लिखें)

- Will reduce personnel crunch for investigation by allowing inspectors the have adequate expertise in it.

**Other Reforms Needed.**

- Focus on Youth in J&K and Red Corridor by providing employment to decrease radicalization.
- Tie up with social media giants to curb terrorist network at the same time security privacy.
- Strengthing Security architecture by Cabinet Minister & rank & statutory status to NSA.

India should need to use international & regional forums like SCO, SAARC, UNGA to develop Comprehensive Convention on Terrorism to build a world of peace & harmony as envisaged in SDG16.

anything this margin (इस भाग में कुछ ना लिखें)

20. The national security architecture needs to be robust enough to deal with present and evolving threats. Elaborating on the statement, discuss the recent steps taken for modernisation of the national security architecture. (250 words) 15

वर्तमान और भावी (उभरते) खतरों से निपटने के लिए राष्ट्रीय सुरक्षा संरचना को पर्याप्त सुदृढ़ करने की आवश्यकता है। इस कथन का सविस्तार वर्णन करते हुए, राष्ट्रीय सुरक्षा संरचना के आधुनिकीकरण हेतु हाल ही में उठाए गए कदमों की विवेचना कीजिए।

Institutions dealing with security of Country in India are.

1. Cabinet Committe on Security (CCS) – PM + Home Minister + NSA + External Minister + Finance Minister.

2. National Security Council (NSC) – Same Membership as Cabinet Committee on Security.

3. NIA – formed in aftermath of Taj Attack.

4. CBI & RAW – investigation agencies.

5. ED – for economic threats.

6. Advisory Committee – with experts from different fields.

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7. Defence Staff Committee - With heads of all three Armed forces.

**Present & Evolving Threats**

- Infiltration in Open Borders.
- Naxalism. Eg- Red Corridor
- Drug Trafficking Eg- Golden Crescent & Δ.
- State Sponsored Terrorism by Pakistan.
- Cyberthreats
  - 4 in 10 minutes.
  - 5th Most Vulnerable country.
- Import dependence on Defence Equipments.
- Cyber Warfare. Eg - Russia in USA
- Lone wolf
- Unmanned Armed vehicle.
- Increased threat to Globalized Financial Sector.

**Recent Steps Taken.**

- Same membership of CCS & NSC for better Coordination.
- Permanent Chief of Defence Staff ⇒ Faster action in emergency times.

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- Integrated Dedicated Battalions – for strong response in emergency times.
- Make-II for Defence Procurement Procedure – to make India a defence Mfg hub & decrease import dependance in crucial strategic needs.
- CERT-In & CERT-fin & National Cyber Coordination & Control Centre for Cybersecurity
- NIA Act Amendment giving more Investigation powers.
- UAPA Act to counter individual terrorist & lone wolf attacks.
- Use of ICT in border Mgt.

Above reforms will ensure a secure life for citizens. Also, India needs to build a global consensus for Convention on terrorism. for coordinated multilateral efforts.

# VISION IAS

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## GENERAL STUDIES (TEST CODE : 1330)

| | | | |
|---|---|---|---|
| Name of Candidate | ANIL BASAK | | |
| Medium Eng./Hindi | Eng. | Registration Number | 28487 |
| Center | | Date | 28/07/19. |

### INDEX TABLE

| Q. No. | Maximum Marks | Marks Obtained |
|---|---|---|
| 1 | 10 | |
| 2 | 10 | |
| 3 | 10 | |
| 4 | 10 | |
| 5 | 10 | |
| 6 | 10 | |
| 7 | 10 | |
| 8 | 10 | |
| 9 | 10 | |
| 10 | 10 | |
| 11 | 15 | |
| 12 | 15 | |
| 13 | 15 | |
| 14 | 15 | |
| 15 | 15 | |
| 16 | 15 | |
| 17 | 15 | |
| 18 | 15 | |
| 19 | 15 | |
| 20 | 15 | |

**Total Marks Obtained:**

**Remarks:**

### INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

16-B, 2nd Floor, Above National Trust Building, Bada Bazar Marg, Old Rajinder Nagar, Delhi-110060

Plot No. 857, 1st Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar Delhi- 110009

# EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

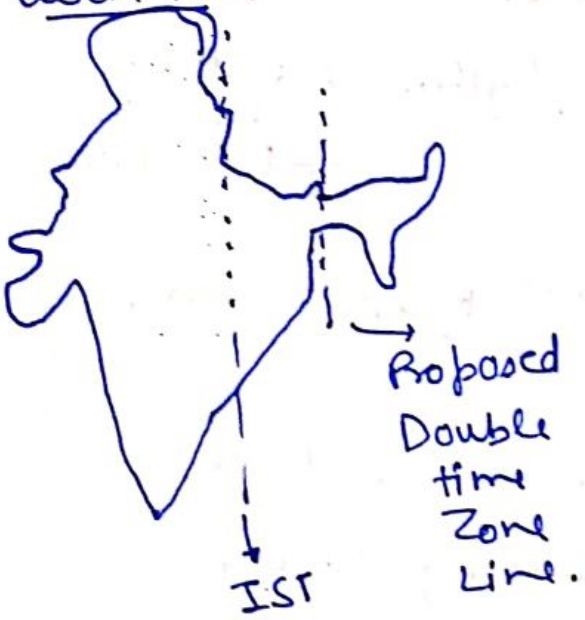
All the Best

Don't write anything this margin (इस भाग में कुछ ना लिखें)

1. Assess the feasibility of introducing two time zones in India in the wake of recent proposal made by Council of Scientific and Industrial Research (CSIR). **(150 words) 10**

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद (CSIR) के हालिया प्रस्ताव के आलोक में भारत में दो टाइम ज़ोन लागू करने की व्यवहार्यता का मूल्यांकन कीजिए।

Currently, India is having single time zone determined from IST Meridian at roughly 82.5°E which is 4.5 hours ahead of Green-wich time




Proposal of CSIR

→ Two time Zone separated by Meridian passing through Chicken Neck Region

Implication

→ NE Region will have 1 hours period advanced from Rest of India

Is it First time?

No, we have similar two time zone in British India - known as Chaibagan time

**Benefits**

→ Daylight time saving in NE
→ More working hours for NE
→ Less electricity costs.
→ Natural Circadian rhythm ⇒ Better health of NE citizen

**Negative Consequences**

→ Further alienate NE Region from Rest of India
→ Railways, Post etc. will have difficulty to continuously change timings

Thus, two time zones are quite feasible by economic point of view for NE region but care should be taken for public utility service adjustment

Don't write anything this margin (इस भाग में कुछ ना लिखें)

2. Mention the conditions responsible for occurrence of Temperature Inversion in atmosphere. Elaborating on its various types, highlight its effects on the biosphere. **(150 words) 10**

वायुमंडल में तापमान व्युत्क्रमण की घटना हेतु उत्तरदायी परिस्थितियों का उल्लेख कीजिए। इसके विभिन्न प्रकारों का सविस्तार वर्णन करते हुए, इसके द्वारा जैवमंडल पर पड़ने वाले प्रभावों पर प्रकाश डालिए।

Temperature inversion is characterized by increase in temperature with height as contrast to normal decrease in temp. with height.

**Conditions**

→ Less vertical air disturbance.

→ Cold Nights

For eg - In Vallys & Mountains, Hot Air engulf (in morning by sun) Cold air in cold nights in Vally.

→ Pallution & Smog in Cities.

For eg - due to vehicular population the thick smog in cold nights not able to escape upwards.

Effects on biosphere

→ It prevents freezing of Mountaneous vegetation, thus increasing productivity.

→ While Vally people suffer from heightened cold.

→ In cities, smog lead to reduce visiblity & cause respiratory problem.

For eg - The Great Inversion of London in 1970's.

→ Disruption of normal temperature trend effect atmospheric ecosystem.

Thus, temp. Inversion in cities is undesirable while it do have some +ve Effects in Mountain-Vally Syste.

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3. Identify different factors that trigger Glacial Lake Outburst Floods. Also, suggest certain measures that need to be taken to minimize their impact. (150 words) 10

उन विभिन्न कारकों की पहचान कीजिए जो हिमनदीय झील प्रस्फोट जनित बाढ़ (ग्लेशियल लेक आउटबर्स्ट फ्लड) को प्रेरित करते हैं। साथ ही, इनके प्रभावों को न्यून करने हेतु किए जाने वाले कुछ आवश्यक उपायों का भी सुझाव दीजिए।

Glacial Lake Outburst Floods (GLOFs) are sudden flash floods observed in Mountainous region due to release of water ~~fro~~ stored in lakes.

Why ?

→ Climate Change - More snow melting ⇒ Capacity of lake is breached.

→ Mining - Create disturbances in downward hills ⇒ vibration cause breakage of bunds of lakes

→ Earthquake - Tremors disturb the stone boundaries of lakes.

→ Wind Erosion - eroding boundary Material

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→ Human Activity Intensivity - in sloppy Mountain regions is dangerous.

## Measures to Minimize

### Preventive Measures

- Renewable energy source use to limit global temp. rise by 1.5°C as per IPCC report
- Mining activity should not be done in sensitive Himalyas.
- Less Human activity intensity

### Mitigation

- Early Warning of earthquake & tremors.
- Side Reservoir creation
- Bunds & Terraces to prevent fast outflow.

& Human & Economic loss caused by GLOFs is huge & it should be properly managed for prosperity of hilly area

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4. What is palaeomagnetism? Explain how it serves as a bridging evidence for Plate Tectonics Theory. **(150 words) 10**

पुराचुम्बकत्व क्या है? व्याख्या कीजिए कि यह किस प्रकार प्लेट विवर्तनिकी सिद्धांत के प्रमाण हेतु एक सेतु के रूप में कार्य करता है।

Palaeomagnetism refers to the earth permanet magnetic character due to movemet of in liquid outer core of ferrous particles. It keeps on changing its direction in centuries time period.

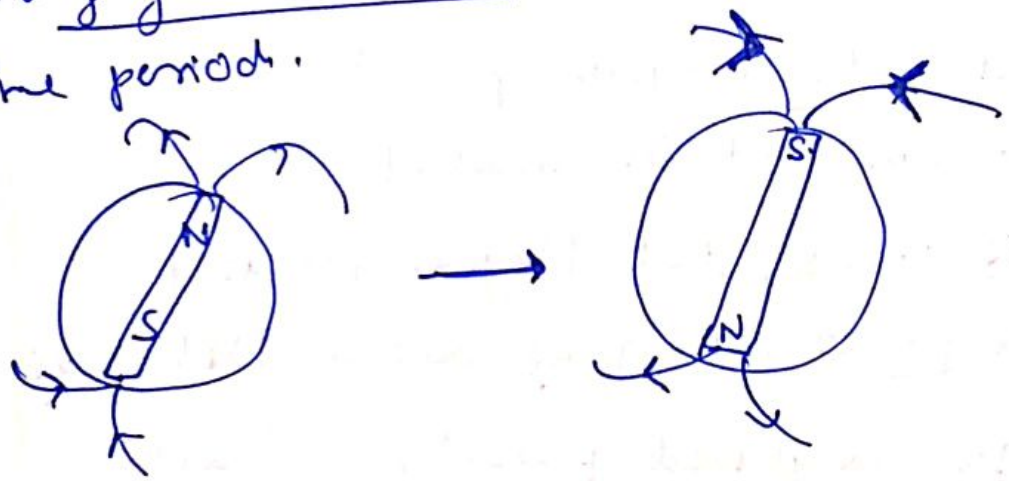


Plate tectonic theory states that earth is divided in several mobile layers which keep on moving on semi-molten asthenosphere. It is due to convectional currents present in asthosphere.

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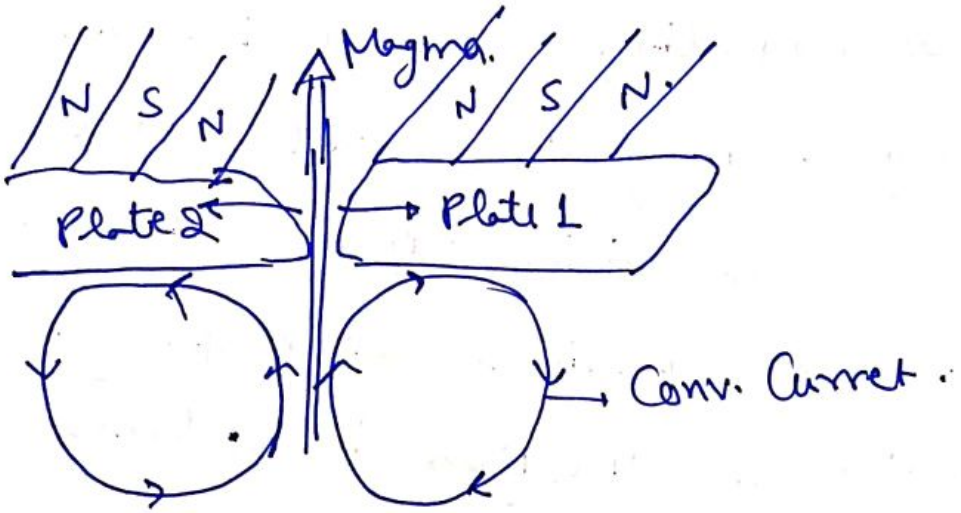
## How Paleomagnetism confirm Plate Tectonics ?




→ Alternate Magnetic polarity layers are observed in seabed

→ This shows, that Magma released from plate divergence along Mid-Oceanic Ridge acquired polarity of earth at that time period.

→ Alternate polarity shows, plates are continuously moving with continuous magma eruption.

This proves Plate Tectonics theory of continent & Ocean distribution & landform formation & destruction.

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5. With adequate examples, explain how ocean currents influence the formation of fishing grounds across the world. (150 words) 10

यथोचित उदाहरणों के साथ, व्याख्या कीजिए कि किस प्रकार महासागरीय धाराएं विश्व भर में मत्स्यन क्षेत्रों के निर्माण को प्रभावित करती हैं।

Ocean currents are large mass of ocean water moving at large speeds in a definite direction for large period of time.

Why? — due to thermal differences btw poles & equator & local winds & Coriolis force.

For eg - Warm Currents - Equatorial C, Gulf Stream, Alaska.

Cold Currents - Humboldt, Benguela, Labrador

How Influence Fishing?

→ Offshore currents lead to upwelling of nutritious water & thus lead to increased fish production

Eg - Peru Coast by offshore Equatorial Current.

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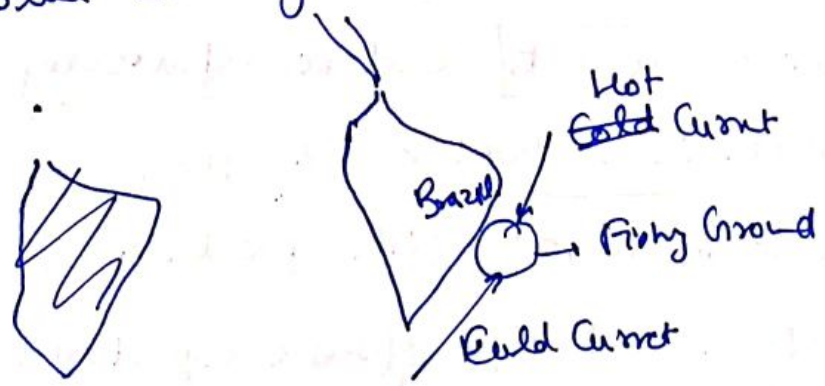
→ Heat Distribution – prevent subfreezing temp. in polar region & thus normal temperature for fish metabolism is maintained.

→ Mixing of Cold & Hot Currents lead to oxygen concentration increment in water & these areas are one with highest fish production.

Eg - Brazil (Humboldt) & ~~Equatorial~~ ~~Arta~~ Atlantic Current).

Japan (Oyashio & Kushio Current Mixing).

Thus, Ocean current effect fish economy & Blue economy to a large scale.



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6. Discussing the reasons behind disappearance of springs, examine how springshed management can help revive springs, especially in the Himalayan region. (150 Words) 10

झरनों के विलुप्त होने के पीछे निहित कारणों पर चर्चा करते हुए, परीक्षण कीजिए कि किस प्रकार स्प्रिंगशेड प्रबंधन झरनों, विशेषकर हिमालयी क्षेत्र में झरनों को पुनर्जीवित करने में सहायता कर सकता है।

According to recent reports by Conservation International & GoI assessment many of springs in Himalyan region are getting dry especially in Sikkim & Arunachal Pradesh & Uttarakhand

Why Drying?

→ Retreation of Ice Cover – due to Global Warming, ice cover is retreated further uphill.

→ More evaporation – due to higher temperature.

→ Erratic Rainfall – due to climate change.

→ Excess exploitation – of source water by local people.

Thir Topography - due to slopes water is not able to store for long time.

## Springshed Mgt.

It is a holistic approch in spring area, ~~Gotot~~ involving all stakeholders in spring water source basin area.

### How Helped In Rejuvenating?

① It considers all base sources - like ice melting, rivulets, rainfall on slopes etc. ⇒ augemeted sources for Ground Water

② Local Mgt. ⇒ fast action in any break of source boundaries & a feeling of community goud

③ Proper bunds creation around spring.

④ Sustainable Water use by local keeping check of base water level.

Thus, Springhead Mgt as made compulsory by Sikkim govt. must be replicated by other states too.

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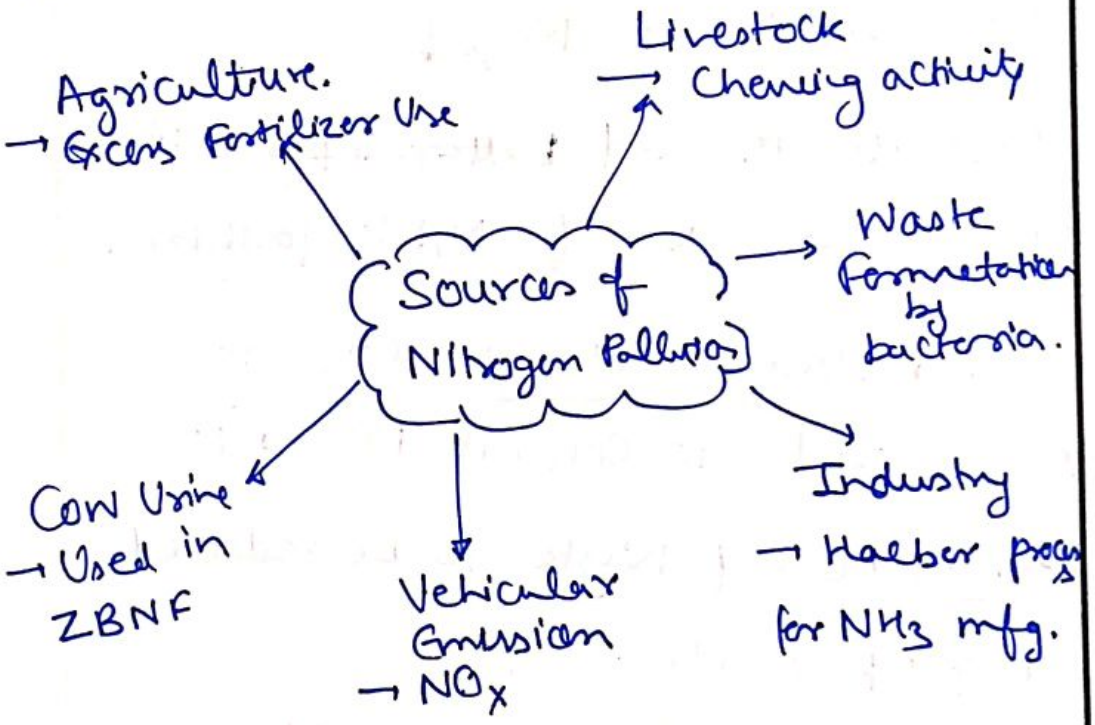
7. Giving a brief account of rising nitrogen emissions in India, discuss why it is a matter of concern. What steps can be taken to limit such emissions? **(150 words) 10**

भारत में बढ़ते नाइट्रोजन उत्सर्जन का एक संक्षिप्त विवरण प्रस्तुत करते हुए, चर्चा कीजिए कि यह चिंता का एक विषय क्यों है। ऐसे उत्सर्जन को सीमित करने के लिए क्या कदम उठाए जा सकते हैं?

According to recent CPCB report Nitrogen emmission have increased by >100% in last decade.




Why Nitrogen Pollution is Harmful?

- Minimata disease by Nitrate pollution
- Burning in eye.

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- Respiratory problem
- $N_2O$ is ozone depleting gas
- $NO_2$ is greenhouse gas ⇒ Warming ↑

## Steps to Reduce N Pollution

① BS VI Norms for vehicles all over India ⇒ $NO_x$ ↓

② Soil Health Card better implentation for judicious use of N, P, K fertilizer

③ In Industry, Catalytic Convertors to be used to convert $NO \rightarrow N_2$

④ Fermetation of Waste to be reduced by proper decomposing

⑤ Rationlizing agricultural subsidies.

⑥ Vegan diet – to reduce livestock population

Thus, a multipronged approach must be taken to reduce threat from N pollution.

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8. Montreal Protocol is often considered as the most successful international environmental treaty. Highlighting the achievements of the protocol, discuss the reasons for its success. (150 words) 10

मांट्रियल प्रोटोकॉल को प्राय: सर्वाधिक सफल अंतर्राष्ट्रीय पर्यावरण संधि के रूप में माना जाता है। इस प्रोटोकॉल की उपलब्धियों पर प्रकाश डालते हुए, इसकी सफलता के कारणों पर चर्चा कीजिए।

Montreal Protocol to Vienna Convetion for phasing out ozone depleting chemicals is ~~ma~~ ratified by all UN countries (184/184) ~~&~~ & brought +ve results.

- After phasing CFCs, countries have decided to start phase out HFCs from 2019 as per kigali agreement

Achivements

→ Estimated by scientists that Ozone over N hemisphere & mid latitude will be healed completely by 2030.

→ by 2050, ozone over S hemisphere will start healing & by 2100 we will be in our past state

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Why so successful

① Wide Ratification – by all UN Countries.

② Better information – about harmful effects of UV Rays ensure unanimous support.
For eg – every school children in India know about Ozone benefits.

③ Better Monitoring – due to binding provision & threat of strong penal action

④ Global Commons – Care about Antarctica Ozone & UV rays disastrous skin cancer affecting pop. all over world.

There, is need to replicate such strong commitment for its 2nd phase from 2019 & also in Paris Climate Pact to ~~do~~ sustainably manage Climate Change impact.

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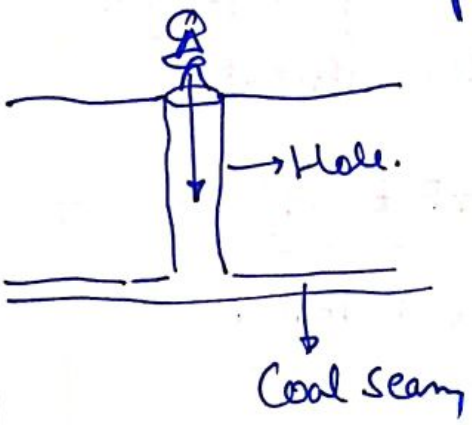
9. Elaborate on the concept of rat-hole mining. In the context of North-Eastern India, highlight its ecological consequences. Also, explain why it still persists despite the ban imposed by National Green Tribunal (NGT)?

**(150 words) 10**

रैट-होल खनन की अवधारणा का सविस्तार वर्णन कीजिए। उत्तर-पूर्वी भारत के संदर्भ में, इसके पारिस्थितिकीय परिणामों पर प्रकाश डालिए। साथ ही, समझाइए कि राष्ट्रीय हरित अधिकरण (NGT) द्वारा इस पर प्रतिबंध लगाए जाने के बावजूद यह अभी भी प्रचलन में क्यों है?

Rat hole mining as contrasted to Open Cast mining refers to Mining practise in which deep long holes/boxes are digged to take out coal/Minerals from great depth.




**Why done in NE**

→ due to thin coal seam bed, ~~&~~ ⇒ ~~less~~ Open Cast mining is non-remunerative

→ low investment by poor corporates of NE.

**Ecological Consequences**

→ Unsustainable height – ~~to~~ failure of side supports ⇒ Collapse

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2. Earthquake & Swarms - due to collapse of deep bors.
3. Landslides in downslope areas
4. GLOFs due to tremors.

→ Also, vulnerable section life especially children who are usually employed in these areas is under threat

**Why exist despite NGT Ban**

→ It is only remunerable mining technique
→ Low investment
→ Poor people with less employmet in NE ready to offer life for money.
→ Nexus btw local bureaucrats / politicians & operators.
→ Loopholes in rules.

Rat hole mining with unscientific techniques is harmful for both human & env.
Better scientific method need to sustainably harness minerals of NE.

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**10.** Discuss the factors responsible for location of high-tech industries in the vicinity of major metropolitan regions. **(150 words) 10**

प्रमुख महानगरीय क्षेत्रों के समीप उच्च तकनीकी उद्योगों की अवस्थिति के लिए उत्तरदायी कारकों की विवेचना कीजिए।

Most of the high tech industries eg- Data Analysis, ICT, Financial service, Consultancies, BPO's, etc are located in metroplial cities vicinity for eg- In India - around Banglore, Delhi NCR, Kolkata etc. & Silicon Vally in USA. near California.

Why ?

→ Skilled Manpower - from world Class Universities in these cities.

→ Infrastructure - like electricity, transportation connectivity is better in these cities. ⇒ better Commutation of workers

→ Development - of these cities is better ⇒ cleanliness, Educated people env.

→ Govt. policies & local govt. (Municipal Committee) in this areas. For eg -

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Smart Cities Mission covr all Metropolitan areas, SEZ are also near Metro cities.

→ Better Network Connectivity – by Telecom providers in these cities.

Is it good?

→ Will create cities of global competitive levels

→ But skewed development & increased inequalities

- like NE region is neglected.

→ Migration ↑ – putting more pressure on to metros ⇒ More env. exploitation & inflation of prices

- Also, creation of more jhuggis in vicinity of Metros.

There is need of infra dev. & trade/services setup incentives in low developed region for inclusive dev.

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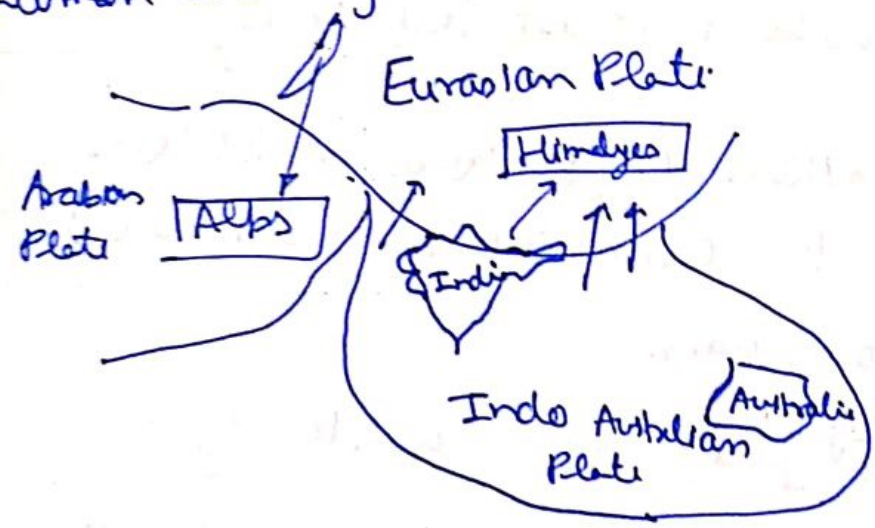
11. Explain the reasons behind earthquakes in Himalayas being more intense and frequent than the ones occurring in Alps region. Why are scientists predicting a largescale earthquake in northern India? Also, elaborate upon some prominent earthquake forecasting techniques. **(250 words) 15**

आल्प्स क्षेत्र में आने वाले भूकंपों की तुलना में हिमालय में आने वाले भूकंपों के अधिक तीव्र होने और बारंबार आने के पीछे उत्तरदायी कारणों की व्याख्या कीजिए। वैज्ञानिक उत्तर भारत में उच्च तीव्रता वाले भूकंप के आने की भविष्यवाणी क्यों कर रहे हैं? साथ ही, भूकंप पूर्वानुमान संबंधी कुछ प्रमुख तकनीकों का सविस्तार वर्णन कीजिए।

Himalyan region is frequently confroted with earthquake, storms, landslide. & thus ~~prev~~ disrupts economic & human activity.




As observed by scientists, Indo Australian Plate is continuously moving towards Eurasian Plate by 1.5 cm/year which led to continuous rise of young Himlyas & consequential earthquake

due to sudden release of energy

- Alps region – in Middle of Europe surrounded by Germany, Switzerland, France, Poland is not on junction of two plates unlike Himalyas, thus less earthquakes.

## Earthquake Forecast Techniques

→ Observation of P Waves & S Waves sending to earth interior & measuring deflection angles.

→ Measuring tectonic plate movements. For eg – by Hotspots movements. & forecast future locations

→ By Natural Wildlife signals like Snakes come out of their holes early. before earthquake.

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## Why Strong Earthquake Prediction

→ Due to climatic impacts, it is observed that movement rate of plates is going to increase.

→ North India is in influence of Arabian Plate, Indo Australian Plate & Eurasian plate & their strong interaction can cause serious earthquake.

There is need to better forecast techniques for earthquakes by looking for tools to measure earth interior activity so that early warning can be disseminated to provide large scale disruption.

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12. Describe the mechanism of formation, movement and dissipation of tropical cyclones. In this context, explain why the recent 'Titli' cyclone was termed as 'rarest of rare' by IMD. **(250 words) 15**

उष्णकटिबंधीय चक्रवातों के निर्माण, संचलन और क्षय की प्रणाली का वर्णन कीजिए। इस संदर्भ में, व्याख्या कीजिए कि हाल ही में आए 'तितली' चक्रवात को IMD द्वारा क्यों 'दुर्लभ में दुर्लभतम' (रेयरेस्ट ऑफ रेयर) कहा गया था।

Tropical Cyclones are large air mass circulating around a low pressure area which when crossed ocean lead to havoc in economic life in coastal areas.

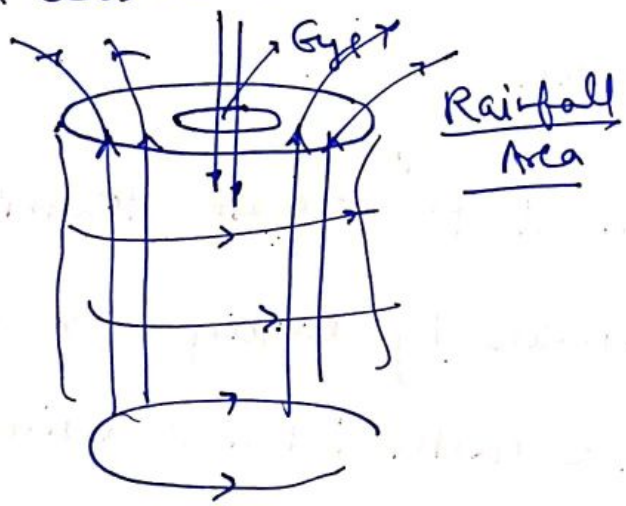


Fig: Tropical Cyclone.

Essential Condition for formation

① High water temp in tropical area.

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(2) Intense low pressure area

(3) Close isobars.

(4) Coriolis force

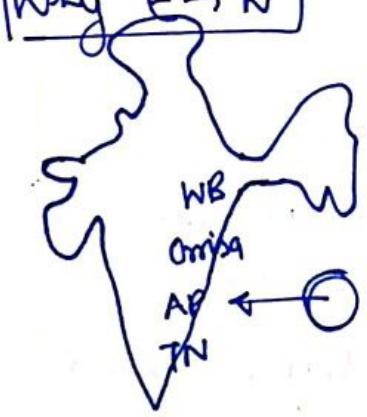
(5) Constant Water source.

→ There are fuelled by energy from Condensation of Water vapours & act as heat engines

**Movement**

→ They move in East to West direction & never cross equator due to absence of Coriolis force

**Why E → W** – due to steering by tropical easterlies.




⇒ In India, Cyclones emerged in Bay of Bengal effect WB, Odisha, AP & TN every year.

Cyclone Titli brought havoc on Odisha coast in 2018.

Why rarest of Rare

→ Generally Dissipation of Cyclone occur when they make landfall as due to break for water source.

→ But Cyclone Titli kept his vigorous nature even after landfall.

→ (2) Recurving after landfall

(3) Large scale economic & human life disruption.

Due to Climate change, cyclones are going to be increased & more disastrous. What is needed -

- Proper Adaptation & Mitigation
- Bio shield of Wetland & Mangroves.
- Less intensive activity along coast
- Early warning & NDMA guidelines should be adhered.

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13. Differentiate between eustatic and isostatic type of sea-level changes. Also, discuss the resultant landforms which are likely to be formed as a result of sea-level fluctuations. (250 words) 15

सुस्थितिक और समस्थितिक प्रकार के सागर तल परिवर्तनों के मध्य अंतर स्पष्ट कीजिए। साथ ही, सागर-तल के उतार-चढ़ाव के परिणामस्वरूप निर्मित होने वाली संभावित परिणामी भू-आकृतियों की भी चर्चा कीजिए।

Sea level rise is not uniform all over the World.

→ Some areas are at particular threat & at in some areas it cause depositional feature & in some erosional feature,

New Landforms

→ (1) Drowning of Islands
Eg - Fiji, Maldives.

(2) Fjords in Polar region

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(3) New type of forests – salt tolerant species.

(4) New type of agri-practice.

(5) Erosional features – even mountains & high cliffs will be eroded.

(6) Depositional – eg gravels on Nice Beach in France.

(7) New islands by deposition in Midway Ocean.

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Don't write anything this margin (इस भाग में कुछ ना लिखें)

14. Discuss the vulnerabilities of urban areas to disasters. What measures have been taken to minimise the losses in such areas during disasters? What further improvements would you suggest to make them more resilient? **(250 words) 15**

आपदाओं के प्रति शहरी क्षेत्रों की सुभेद्यताओं पर चर्चा कीजिए। आपदाओं के दौरान ऐसे क्षेत्रों में होने वाली क्षति को न्यून करने के लिए क्या उपाय किए गए हैं? आप उन्हें और अधिक लचीला (रिज़िल्यन्ट) बनाने के लिए क्या उपाय सुझाएंगे?

Urban areas all over world are areas of intense economic activity, large population density and many of them located on coast & hinterland, & characterized by skyscrapers & contrasting jhuggis in vicinity

Vulnerablities to Disasters

① Earthquake - can significantly effect illegal, unsustainable tall structures.

② Cyclone, Tsunami - On Coastal metro cities. Eg - Chthenai

③ Urban Heat Island - due to pollution & Warming ⇒ Intense Heatwaves

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(4) Flooding - near river plain during erratic. Monsoon season
Eg - Patna, Mumbai

Given, their economic importance & large human population residing there, there is need to take effective measures. Some measures undertaken

(1) Earthquake Zoning - to prevent fall structures in Zone IV & V, making earthquake resilient infra & Mock Drills for unfortunate events.

(2) CRZ - Coastal Regulation Zones - preventing intense human activity near HTL. They should not be diluted by recent amendments.

(3) Better Drainage - Public Works undertaken in Mumbai, Delhi to prevent ever-frequent Water-logging.

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(4) Bio shields for Tsunami & Cyclone
For eg - Bhitarkanika & Chilika Mangroves are revamped on Odisha Coast.

(5) Focus on EV, BS VI Norms to prevent Warming & Heatwaves also divergence of vehicle by Sl defauses & Ring Roads

(6) Early Warning Systems for disasters & dedicated authorities like INCOIS.

(7) Comprehensive act NDMA, 2005 (National Disaster Mgt. Act) which duly considers urban area vulnerability.

(8) International Collaboration like RIMES to get better information to prevent situation like 2004 Tsunami.

(9) NDMA & SDMA & Municipal Committee taking regular monitoring, capacity building & Mock drills.

India should keep adhering to Sendai Framework & use better scientific tools to decrease vulnerability to Urban Disasters

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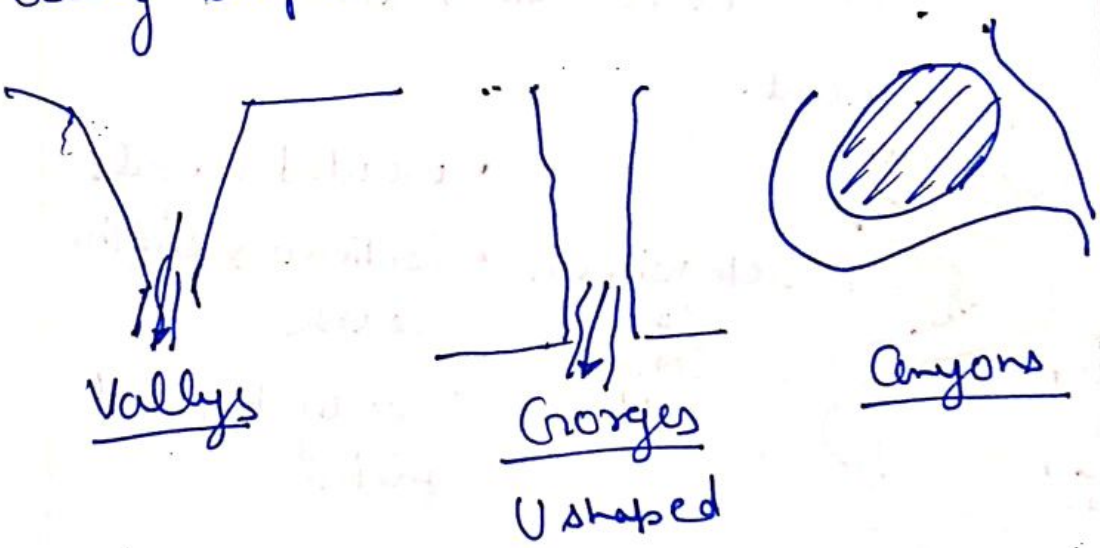
**15.** Explain the role of river as a geomorphic agent with suitable examples of landforms formed during its course of flow. **(250 words) 15**

नदी प्रवाह के दौरान निर्मित होने वाले भू-आकृतियों के उपयुक्त उदाहरणों सहित भू-आकृतिक कारक के रूप में नदी की भूमिका की व्याख्या कीजिए।

Rivers act as a strong erosional & depositional agent due to high Kinetic Energy of water flow & creates varied landforms in its life course.

Youth Stage - Downward cutting is prominent & high velocity of water along slopes is observed.




Middle Stage - When river leaves Mountains & enter plains

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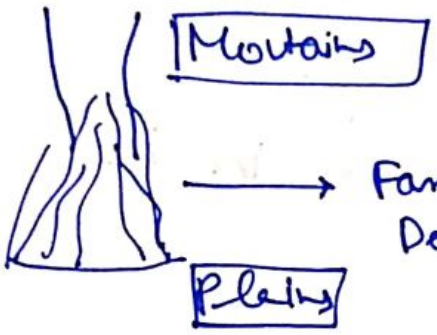
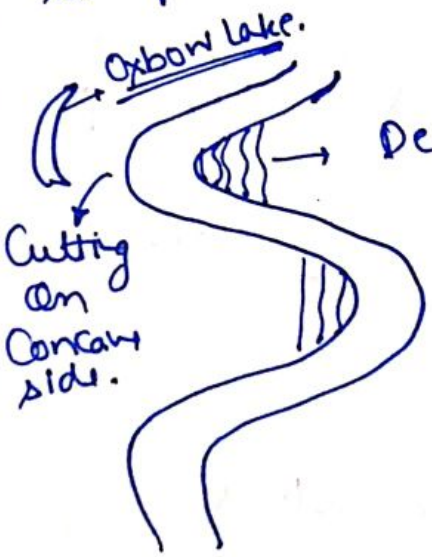
For eg - In India Terai region where river re-emerged after getting hidden in may rivulets.




→ Fan Shaped Deposition with May rivulets.

→ Terai are waterlogged high productive Region.

Old Stage – Here sideward cutting is prominent.




→ Deposition On Convex Side.

- Braided Channels
- Continuous shifting Course
- Floody in flood plains.

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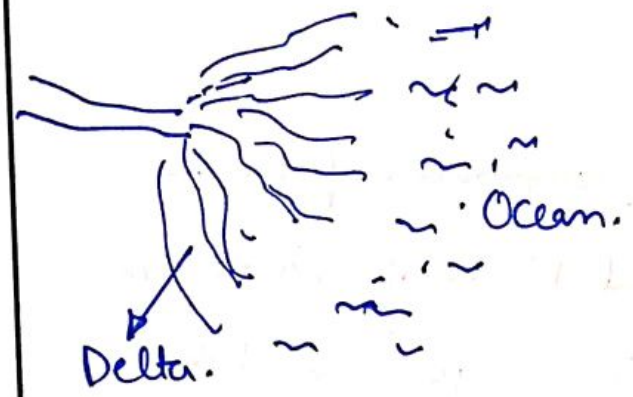
## Discharge In Ocean




Many river form fan shaped deltas because of low water speed, sediment holding capacity is reduced & all sediments are deposited

For eg - Sunderban deltas by Ganges-Brahmaputra

→ while river with short course & low sediments don't form delta

Eg - Narmada, Tapti, Sharavati etc.

Thus, Rives the arterterics of a nation forms may erosional & depositional features in its course

margin (इस भाग में कुछ ना लिखें)

16. Analyse how far the 'Katowice Climate Package' goes in achieving the objectives of the Paris Climate agreement amid the concerns of developing countries like India. **(250 words) 15**

विश्लेषण कीजिए कि भारत जैसे विकासशील देशों की चिंताओं के संबंध में पेरिस जलवायु समझौते के उद्देश्यों को प्राप्त करने में 'कैटोवाइस जलवायु पैकेज' कितना कारगर सिद्ध हुआ है।

Recently, COP21 (Conference of Parties) to UNFCCC (United Nations Framework Convention on climate Change) was held in Katowice, Poland. It was also CMP6 (Conference of Member Parties) to Paris Agreement, 2016.

What is Paris Agreement

In it, parties to agreement agreed to limit the global temp. rise by 2°C from pre-industrial levels & also strive to limit it by 1.5°C as far as possible.

→ Around 150 Countries are parties to it. Significant Non-Members - USA, Iran

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## Outcomes of Katowice Summit

① Rulebook on accounting norms of how to measure & report emission reduction is finalized.

⇒ In future, better monitoring of emission from individual countries.

② SDM (Sustainable Developmet Mechanism) as successor of CDM (Clean Dev. Mechanism) is not finalized.

③ IPCC Report 6 titled 'Global Warming of 1.5°C' see heated debate.

⇒ Shows political neglicence of scientific evidencies for economic exploitation.

④ Overall Mitigation in Emmission Norms as shift from just shifting of emmission is not finalized.

⑤ Voice of Greta Thungberg & school children was echoed ⇒ shows

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information penetration about Climate Change in childrens.

(6) Warsaw Financial Mechanism for Mitigation of Impact on Island & vulnerable countries was made fundless.

(7) Overall, less focus on strong devolution from developed countries was observed & more on developing countries to to fund their project themselves.

(8) Also, Global Stocktake dates for NDC (National Determined Contribution) ~~was~~ assessment was finlized.

This, shows that Katowice Package has decreased devolution & slow in realizing pre-requisite Infrastructure for enforcement of Parist Agreement from 2020. There is need to take hard measures on developed Countries for ~~from~~ taking responsibability for their past deeds & fund & technology transfer.

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17. What is Conservation Agriculture? Highlight the prospects and challenges of adopting Conservation Agriculture in India. Also, mention some important policy considerations for its promotion. (250 words) 15

संरक्षण कृषि क्या है? भारत में संरक्षण कृषि को अपनाने की संभावनाओं और चुनौतियों पर प्रकाश डालिए। साथ ही, इसके प्रोत्साहन के लिए कुछ महत्वपूर्ण नीतिगत उपायों का भी उल्लेख कीजिए।

Conservation Agriculture are farming techniques which focus on sustainble farming by using various methods like

- Zero Budget Natural Farming (ZBNF) - Chemical free
- Organic Farming
- Less tillage & minimal ploughing.
- Soil Health improvement by manure.
- Mulching, less irrigation, Vermicompost
- Intercropping, Mixed farming
- Forestry farms - Trees with Crops.

Cons. Agri. helps in reducing farming cost, improve soil health & productivity, & is sustainable in long term.

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**Prospects**

→ ZBNF ⇒ farmer indebtness ↓ & healthy incomes. Today, in India 50% farmers are indebted (NSSO) ⇒ Highly relevant to follow up in India.

→ Ecological benefits – Solution to Water Crisis, (as agri. alone accounts for 80% water use in India)
Increased forest cover, soil health.

→ Human – better nutritious food (as excess fertilizer use cause Cancers in Punjab).

**Challenges**

→ Lack of knowledge among farmers.

→ Time Consuming

→ Apprehension of low Yield – as seen in Sikkim after fully Organic practices.

→ Food Security issues – still 15% pop. sleep with hungry stomach.

Neglicence of farmer.

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Important efforts taken by Govt.

→ PM Parampragat Krishi Vikas Yojana incentivise farmers to adopt organic practice.

→ PM krishi Vikas Yojna (PMKY-RAFTAAR) for Green Revolution allowed divergence of funds for ZBNF

→ AP (Andhra) declared to adopt 100% ZBNF by 2024 following karnataka.

→ Sikkim – First fully organic state.

→ Krishi Vigyan kendras – for information dissemination about Conservation Agriculture

→ FPO & Farmer Coop. to scale up organic farming.

→ NAFED provide international market for organic exports.

Though, the efforts are worth appraising there is need for better Implementation to achieve SDG Goals & Doubling farmer Income by 2022.

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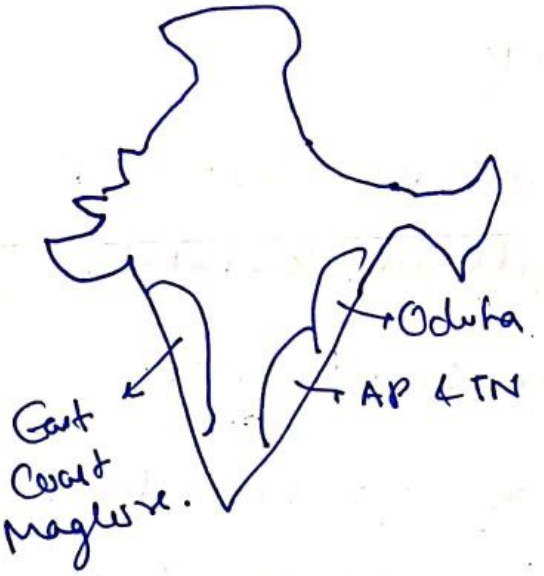
18. Elaborate the concept, objectives and distribution of Petroleum, Chemicals and Petrochemical Investment Regions (PCPIRs) in India. Also, examine why the PCPIRs have failed to achieve the desired success. **(250 words) 15**

भारत में पेट्रोलियम, रसायन और पेट्रोरसायन निवेश क्षेत्रों (PCPIRs) की अवधारणा, उद्देश्यों एवं वितरण का सविस्तार वर्णन कीजिए। साथ ही, परीक्षण कीजिए कि PCPIRs वांछित सफलता प्राप्त करने में क्यों विफल रहे हैं।

There are currently 4 PCPIRs in India.




All of them are in Coastal area.

Objective

→ To increase investment

→ Promote FDI

→ Employment opportunities.

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→ Energy Security.

→ World scale Competitive Industry

→ Export Earnings

**Why Failed**

→ Less govt. Incentives.

→ Port Capacity & connectivity

→ Infra like electricity.

→ Tight Labour laws ⇒ Less Investment.

→ FDI policy.

→ Rupee Volatality.

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Don't write anything this margin (इस भाग में कुछ ना लिखें)

19. National Policy on Biofuels 2018 primarily tries to address supply-side issues that have discouraged the production of biofuels within the country. Elaborate. What other benefits are expected from the policy?

(250 words) 15

जैव ईंधन पर राष्ट्रीय नीति- 2018 मुख्य रूप से आपूर्ति पक्ष के मुद्दों का समाधान करने का प्रयास करती है जिन्होंने देश के भीतर जैव ईंधन के उत्पादन को हतोत्साहित किया है। सविस्तार वर्णन कीजिए। इस नीति से और क्या लाभ होने की उम्मीद है?

National Policy on Biofuels aims to promote production & use of Biodiesel, Bioethanol, Biojet, Biogas also & is holistic in nature.

Tackling Supply Side Issues

① Allowed use of surplus foodcrops in biofuel production

② Increased list of foodcrops by including Sugarcane, Maize etc.

③ Divided fuels in ~~1st~~

1st Gen – from foodcrops
2nd Gen – from agri waste & energy crops like Jatropha
3rd Gen – from Algae
4th Gen – crops which have Carbon Sequestration potential.

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(4) Provide incative for higher gen. biofuel production by Viability Gap funding.

(5) Barred exports of biofuels.

## Demand Side Issues

(1) Made targets of compulsory 20% biofuel mixing in ethanol & 5% in diesel by 2030.

(2) Mandatory procurement by petro-chem industries

(3) By flights like Spicejet on Turbo-biofuel it promote market extension.

## Why Biofuels Promotion?

Biofuels are drop in fuels produced from organic agri waste fermentation which can be directly used in

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vehicles with less modification

Benefits -

- Decreased $NO_x$ emmission
- Better fuel utilization efficiency as proven in test
- Less sulphur content ⇒ Better Catalytic Convertors Can be used.
- Better income source from farmers
- Use of agri waste (Waste → Energy) → solve problem of stubble burning & pollution by PM-JIVAN (Jaiv Indhan Vatavarkulit Krishi Avaishesh Nivaran Yojana).
- Cattle dung used to produce Biogas ⇒ Energy security
- Combat Climate Change

Thus, Policy address demand & supply side issues & will be big leap towards sustainable dev. of India & prosperous farmers.

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20. Identify the major Uranium reserves in the world and the countries from where India sources it. What measures are required to ensure supply security of fuel for nuclear plants in the country? **(250 words) 15**

विश्व के प्रमुख यूरेनियम भंडारों और उन देशों की पहचान कीजिए जहाँ से भारत इसका आयात करता है। देश में परमाणु संयंत्रों के लिए ईंधन आपूर्ति की सुरक्षा सुनिश्चित करने के लिए किन उपायों की आवश्यकता है?

~~Major~~ Uranium reserves in World are distributed across varied Continents. India being low in Uranium need to import it for Nuclear energy production.

Major Reserves in World

1. Kazakstan
2. Uzbekistan
3. Australia
4. Russia
5. USA.

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India has bilateral agreement with Kazakhstan, Russia, Australia & recently with Uzbekistan. Also, USA is long supplier from 2006 treaty.

**Measures Needed for supply security**

① Diplomatic efforts.

② Demonstration of peacful use of IAEA (Intl. Atomic Energy Authority).

③ Denuclearization of Nuclear ~~arsenals~~ arsenals.

④ Continuous Bidding for NSG (Nuclear Supplier Group) entry.

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Given, the energy needs of future large population in India, India should see Nuclear energy as a viable energy security option.